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EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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06/06/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@weyerhaeuser.com

Office Action Summary	Application No. 10/748,930	Applicant(s) STOYANOV ET AL.	
	Examiner DENNIS CORDRAY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-16,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-16,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

The oath or declaration submitted 12/30/2003 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

Declaration under 37 CFR 1.132

Applicant's arguments and Declaration under 37 CFR 1.132, filed 3/17/2008, have been fully considered but they are not persuasive.

The discussion with regard to Hansen et al ('256) is moot as the rejections over the '256 reference have been withdrawn.

Applicant has presented data demonstrating that the presence of 20% or 30% water in the fibers at the time of crosslinking, as recommended by Hansen et al ('326) when the binders can also function as crosslinking agents, has no apparent effect on the crosslinking with citric acid in the presence of sorbitol with regard to the bulk or optical properties of the resulting crosslinked fibers.

While the examples in the Declaration were cured at a temperature lower than now claimed and in the presence of a greater amount of sorbitol than now claimed, the data do tend to indicate that the fibers crosslinked according to Hansen et al ('326) have the claimed bulk and optical properties.

Response to Arguments

Applicant's amendments filed 3/17/2008 have overcome the rejections of Claims 1, 3-7, 9-10, 16 and 19-20 under 35 U.S.C. 102(b) or under 35 U.S.C. 103(a) over Hansen et al ('256) and the rejections over Hansen et al ('256) in view of others. The upper limit of polyol lies outside of the range taught as usable by Hansen et al ('256). The rejection of Claims 1, 3-7, 10-12, 16 and 19-20 under 35 U.S.C. 102(b) over Hansen et al ('326) has been overcome as the claimed curing temperature range of Hansen does not expressly teach a temperature within the claimed range. Therefore, the rejections indicated above have been withdrawn.

Should the rejection of Claim 1 under 35 U.S.C. 112, 1st paragraph, as detailed herein, be validated, at least some of the withdrawn rejections may be reinstated.

Applicant's arguments filed 3/17/2008 with regard to the rejections of claims over Hansen et al ('326), both alone and in view of others, have been fully considered but they are not persuasive.

The discussion with regard to Hansen et al ('256) is moot as the rejections over the '256 reference have been withdrawn.

Applicant argues on p 11 that Hansen et al ('326) does not teach crosslinking of cellulose fibers with α -hydroxy polycarboxylic acid in the presence of 0.1 to 2.6% by

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weight of a C₄-C₁₂ polyol, the claimed Whiteness Index (WI) and L value, the WI measured after curing at 185°C-215°C. As detailed in the rejections herein, Hansen et al ('326) discloses embodiments wherein cellulosic fibers are crosslinked with an α -hydroxy polycarboxylic acid (citric acid is exemplified) in the presence of a polyol (sorbitol is claimed) in an amount as low as 1% by weight of the fibers by curing at a temperature range of about 140 to about 180 °C, which is considered by the Examiner to overlap the claimed range. The Declaration discussed above provides evidence that the fibers of Hansen et al ('326) can have the claimed WI and L value. Fibers cured at the upper temperature limit of "about 180°C" disclosed by Hansen et al ('326), which the Examiner construes as overlapping the claimed lower limit, have a structure substantially the same as the claimed fibers, and the same properties for reasons discussed in prior Office Actions.

Applicant argues on p 12 that crosslinked cellulosic fibers are not taught by Hansen et al ('326). Hansen et al ('326) discloses a mat of cellulosic fibers impregnated with a crosslinking agent, fiberized, dried and cured (col 45, lines 30-33). Individualized intrafiber crosslinked cellulosic fibers would at least have been obvious to one of ordinary skill in the art from the cited lines, and even more so when the entire example is read (see col 45, line 65, "Crosslinked fiber at the output of the dryer..."). The citation in column 10 is not needed for the rejection and is not used herein. Other cited passages teach α -hydroxy polycarboxylic acid as a crosslinking agent that can be used in the presence of a polyol.

Regarding the curing temperature, Hansen et al ('326) does not teach that curing at a temperature above 180°C will result in scorching, but that curing at a temperature within about 140°C and about 180°C is sufficient to cure the crosslinking agent without scorching the fibers. The term "about 180 °C" is considered by the Examiner to overlap 185 °C and even temperatures a few degrees higher. Thus the disclosed curing temperatures of Hansen et al significantly overlap the claimed range or, at least, one of ordinary skill in the art at the time of the invention would "clearly envisage" crosslinking temperature within the claimed range from the disclosure of Hansen et al without scorching the fibers.

The relationship between time and temperature during crosslinking of cellulosic fibers is well known in the art, as taught by Cook et al ('740), col 13, lines 32-49. For instance, for temperatures from about 145°C to about 165 °C, a curing time between about 30 and about 60 minutes is sufficient; for temperatures from about 170°C to about 190 °C, a time between about 2 and about 20 minutes is used. An upper limit of 225 °C is taught to prevent darkening or damaging of the fibers. It would also have been obvious to one of ordinary skill to obtain the crosslinked fibers without scorching by curing at the claimed temperatures for an appropriately shorter time than used for the temperature range disclosed by Hansen et al ('326).

With regard to combining binders, Applicant admits that Hansen et al ('326) teaches that binders can be combined. Hansen et al ('326) also teaches species of binders that are very different from the crosslinking agents. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or

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nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). “A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.” *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) Furthermore, “[t]he prior art’s mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed....” *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). *Hansen et al* (‘326) does not criticize, discredit, or otherwise discourage using citric acid with another binder, such as a polyol. Absent convincing evidence of unobvious properties, it would have been obvious to use any of the disclosed crosslinking agents with any of the disclosed binders. As discussed above with regard to the Declaration, the fibers made according to *Hansen et al* (‘326) have the claimed bulk and WI, therefore fibers having the claimed properties are not unobvious over embodiments of *Hansen et al* (‘326). Furthermore, there has been no comparison with other combinations of crosslinking agents and binders to show that the claimed combination provides unobvious properties.

Regarding the combination of *Smith et al* and *Hansen et al* (‘326), *Smith et al* is only used to teach what was generally known in the art at the time of the invention. The rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. *In re*

Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The rejections not indicated above as withdrawn are maintained, but have been modified to omit some contested statements and to address the amended claims. In addition, a new ground of rejection under 35 U.S.C. 112 is presented due to the amendments.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1, as amended, recites "from about 0.1% to about 2.6% of the weight of the cellulose fiber of a C₄-C₁₂ polyol". There is no disclosure in the Specification or Claims as originally filed of the very specific limits claimed and no disclosure that would lead one of ordinary skill in the art to select the very specific limits claimed. On p 7, last par, the limits of about 1% to about 10% and the limits 2% to about 6% are disclosed. The data in tables 1 to 3 include additive (polyol) in the amounts of 1.5%, 2%, 4%, 6%, 8% and 10% (Wt% on fiber), The lower claimed limit is well outside any of the ranges disclosed.

Claim 1 also recites the lower limit for the curing temperature of 185°C as being equivalent to 360°F used in Tables 1 and 2. The temperature of 360°F converts to 182°C, as previously admitted by Applicant on p 4 under the section Amendments to the Claims in the response received 8/11/2007. Nowhere in the Specification as filed does the temperature of 185°C appear and there is no disclosure that would lead one of ordinary skill in the art to select the specific claimed lower temperature of 185°C from the disclosed range of about 120°C to about 215 °C (p 9, middle par) or from the disclosed examples in Tables 1-3, which recite 170°C, 360°F(182°C) and 380°F(193°C).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 6, 7, 10-16 and 19-20 are rejected under 35 U.S.C. 103(a) as unpatentable over Hansen et al (5789326).

Hansen et al ('326) discloses crosslinked cellulosic fibers comprising particle binders (Abs; col 45, lines 30-33). Particle binders include α -hydroxy polycarboxylic acids (citric is recited as an example) and polyols (sorbitol is claimed) (col 46, lines 7-15; Claims 3 and 4). The binders are added in an amount from 1-80% by weight of the

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fibers, and preferably from 1-25% by weight (col 4, lines 49-53). Thus, the amount of binder present significantly overlaps the claimed amount.

The crosslinking agent can be citric acid (an α -hydroxy polycarboxylic acid) or any other crosslinking agent known in the art (col 42, line 61 to col 43, line 14 and particularly col 43, line 8). The fibers are cured (crosslinked) within a range of about 140 to about 180 °C (col 45, lines 6-10). The term "about 180 °C" is considered by the Examiner to overlap 185 °C and even temperatures a few degrees higher. The disclosed curing temperatures of Hansen et al significantly overlap the claimed range or, at least, one of ordinary skill in the art at the time of the invention would "clearly envisage" crosslinking temperatures within the claimed range from the disclosure of Hansen et al.

The particle binders can be added before, after or simultaneously with curing (col 45, line 66 to col 46, line 3). Where the binders can also function as an interfiber crosslinking agent (citric acid and polyols, are recited as examples), the fibers should contain at least 20% by weight of water, which inhibits ester bond formation and ensures that adequate binder will remain in the fibers to bind the particles to the fibers (col 46, lines 12-29). Thus, in some embodiments, the fibers are crosslinked in the presence of the particle binder that comprises sorbitol.

Hansen ('326) et al does not disclose the wet bulk, Whiteness Index, L value, a-value or b-value of the fibers. The reference discloses all the structural limitations of the claims (in this case, cellulosic fibers crosslinked with an α -hydroxy polycarboxylic acid in the presence of 1 to 80% C₄-C₁₂ polyol by weight of the fibers, which overlaps the

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claimed range. The crosslinked fibers of Hansen et al will have the claimed wet bulk whiteness and color properties for reasons given in previous Office Actions.

Furthermore, the Declaration submitted on 3/17/2008 shows that the fibers made according to Hansen et al ('326) have the same properties as the claimed fibers.

Hansen et al ('326) does not disclose the specific acyclic polyols and heterosides of the instant Claims.

Hansen et al ('326) does disclose crosslinked cellulosic fibers comprising particle binders that include sorbitol.

It would have been obvious to one of ordinary skill in the art that the other claimed species of polyol (erythritol, xylitol, arabinitol, ribitol, Mannitol, perseitol, volemitol, maltitol, myo-inositol and lactitol), having structures and functionality similar to sorbitol (with varying numbers of carbon atoms and hydroxyl groups on adjacent carbon atoms), would be expected to act similar to sorbitol as a binder. It would thus have been obvious to one of ordinary skill in the art to substitute any of the claimed polyols for sorbitol as a particle binder in the fibers of Hansen et al ('326) as a functionally equivalent option with predictable results.

Claim 1 is a product-by-process claim. The product of Hansen et al ('326) appears to be the same as or similar to the claimed product, crosslinked cellulosic fibers, although produced by a different process. Furthermore, the Declaration submitted on 3/17/2008 shows that the fibers made according to Hansen et al ('326) have the same properties as the claimed fibers. The burden therefore shifts to applicant

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to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the product of the product-by-process claim 1 as opposed to the product taught by the reference Hansen et al ('326), such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

Claims 8-9 are rejected under 35 U.S.C. 103(a) as unpatentable over Hansen et al ('326) in view of Smith et al (US 2002/0090511).

Hansen et al ('326) do not disclose malic acid or tartaric acid as a crosslinking agent.

Smith et al discloses that citric, malic and tartaric acids are crosslinking agents for cellulosic fibers p 6, pars 71 and 74; pp 13-14, Tables 3 & 4).

The art of Hansen et al ('326), Smith et al and the instant invention is analogous as pertaining to the crosslinking of cellulosic fibers. The claimed polycarboxylic acids are all α -hydroxy polycarboxylic acids and one of ordinary skill in the art would have expected them to function similarly. It would have been obvious to one of ordinary skill in the art to use any of the claimed acids as a crosslinking agent for the fibers of Hansen et al ('326) in view of Smith et al as well known and functionally equivalent options and have a reasonable expectation of success.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 6-8 and 10-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over (renumbered) claims 1-9 and 11-12 of copending Application No. 10/748977, as detailed in the previous Office Actions. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed fibers in the instant invention are obvious by the method claimed in the copending application (i.e.-by following the method in the copending application, a person with ordinary skill in the art would expect to make the claimed fibers). The claims of the copending application recite crosslinking cellulosic fibers in the presence of a C₄ to C₁₂ polyol, the crosslinking agents and polyols being the same as those of the instant invention.

Claims 1, 6-8, 10-12 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of

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copending Application No. 10/815206. The claims of the copending application recite an additional step of bleaching the cellulosic fibers that have been crosslinked in the presence of a C₄ to C₁₂ polyol, the crosslinking agents and polyols being the same as those of the instant invention. The instant application does not exclude the use of bleached fibers or of bleaching the fibers, therefore the fibers of the copending application are a species of the fibers of the instant application and would have the claimed properties (i.e.-Whiteness Index greater than about 69.0 and L-value greater than about 94.5) of the instant application.

. Claims 1, 3, 4, 6-8, 10, and 12-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 10/748969. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed fibers in the instant invention are included in the fiber containing product claimed in the copending application and it would be obvious to make an absorbent product as a typical application of claimed crosslinked cellulosic fibers.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791